ISSN (print) 0093-4666 © 2012. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/119.431

Volume 119, pp. 431–438 *January–March 2012*

Nomenclatural notes 13. An incorrect neotype designation and provision for a lectotype and an epitype for *Helvella fusca*

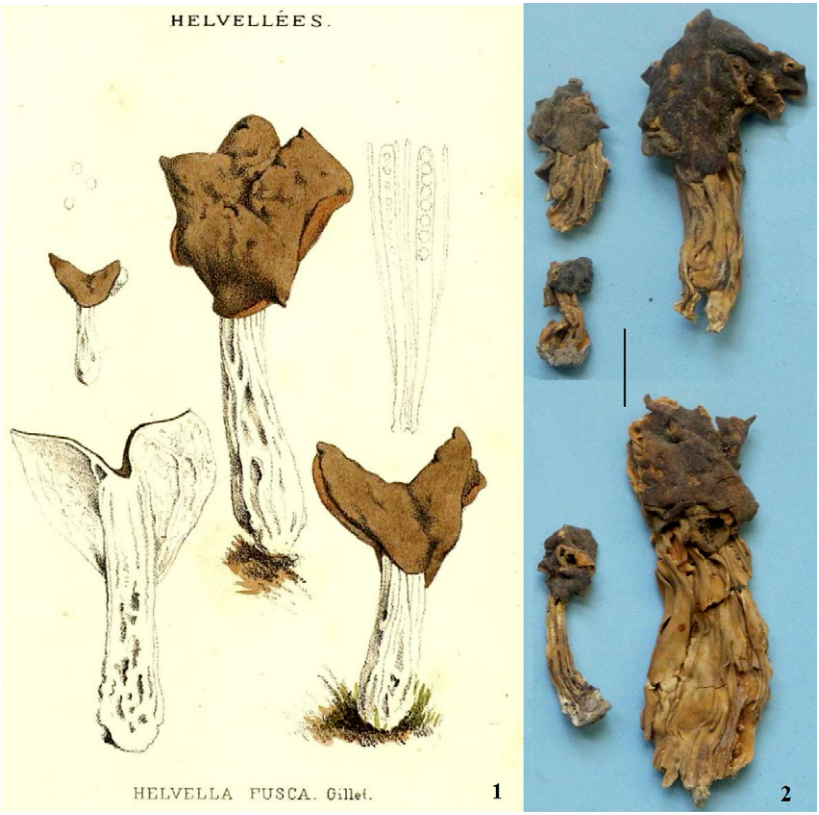
Fidel Landeros [1,2 *] & Richard P. Korf[3]

[1]*Facultad de Ciencias Naturales, Universidad Autónoma de Querétaro, Avenida de las Ciencias s/n, Santiago de Querétaro, Qro., 76270, Mexico*
[2]*Departamento de Botánica y Zoología, Universidad de Guadalajara, Apartado postal 1-139, Zapopan, Jal., 45101, Mexico*
[3]*Plant Pathology Herbarium, Cornell University, Ithaca, NY 14853, USA*
Correspondence to *: **landeros@uaq.mx*, [3]*info@mycotaxon.com*

Abstract — A neotype designation for *Helvella fusca* proposed in 1997 proves to have been erroneous because an illustration accompanying the original description was overlooked. Such illustrations normally have served as the lectotype when all known specimens of the author's taxon have been lost. The authors of that neotype designation should instead have designated the illustration as a lectotype and a specimen as an epitype, which is done in this paper. The so-called neotype specimen is now selected as the epitype specimen. A full description, illustrations and remarks about synonyms and a non-synonym are also provided.

Key words — International Code of Botanical Nomenclature

Helvella fusca was described by Gillet (1879: 9), but unfortunately his description did not specify any specimen or figure to represent that species, making typification more difficult. Dissing (1966b) wrote about this species: "I have not seen any authentic specimen of *H. fusca* Gillet, whereas the many Bresadola-collections of *H. fusca* in the herbarium in Stockholm (S) make it possible to get a precise concept of Bresadola's species." With respect to the type specimen of *H. fusca*, Dissing (1966b) wrote only, "not seen." Later, in their seminal paper on the northern and northwestern *Helvellaceae* of North America, Abbott & Currah (1997) made a minor but (we believe) critical error by designating a neotype specimen for *H. fusca,* even though that species does not occur in North America. They overlooked the excellent illustration in Gillet's paper (pl. 4, not cited in the species description but referenced mistakenly in one plate listing as pl. 14 and correctly in the other as pl. 4). They may have been unaware that such an illustration, if one upon which it can be shown that the description



Figs. 1–2. 1: Type of *Helvella fusca*, reproduced from Gillet (1879). 2: Part of *Helvella fusca* epitype (Bresadola's specimen 05 21 1898, S). Scale bar = 1 cm.

or diagnosis validating the name was based, is considered part of the original material (McNeill et al. 2006: Vienna Code Art. 9 Note 2) and becomes eligible as a lectotype (sometimes informally referred to an "iconotype") of the species name (Fig. 1). An interesting article by Ross (2002) brings into question whether an illustration accompanying an original description is always part of the original material and thus eligible as a lectotype when all specimens are lost or missing. At the XVIII International Botanical Congress in 2011 one proposal attempting to clarify such situations (Art. 9, Prop E (215); see McNeill & Turland 2011, Perry 2010) regrettably was rejected by a card vote (McNeill et al. 2011). We feel that this case should be corrected at a future Congress but now proceed under the assumption that Gillet's plate was drawn from living specimens now lost and that the illustration is part of the original material that can and should be designated as a lectotype.

A neotype may only be proposed when ALL original material is lost [Vienna Code]:

> Art. 9.6. A neotype is a specimen or illustration selected to serve as nomenclatural type if no original material is extant, or as long as it is missing."

Also pertinent is Art. 9.7:

> An epitype is a specimen or illustration selected to serve as an interpretative type when the holotype, lectotype, or previously designated neotype, or all original material associated with a validly published name, is demonstrably ambiguous and cannot be critically identified for purposes of the precise application of the name of a taxon.

The senior author pointed out this discrepancy to the junior author, and we have chosen instead to propose as epitype the same specimen designated as neotype by Abbott & Currah (1997) from the Bresadola collection in the Naturhistorische Rijksmuseum in Stockholm, Norway —Al Deserto, [Italy], collected by Bresadola, 05 21 1898 (FIG. 2). This specimen is also illustrated by Dissing (1966b). Oddly, Abbott & Currah failed to cite (or were unaware of) Bresadola's careful description, which clearly cited Gillet's figure and provided a superb plate of his own collection (Bresadola 1900: 100, tab. CCXII) (FIG. 3). That plate and description was reissued (Bresadola 1933: 1174, pl. 1174) with the headers and footers of the plate in different typeface and numbering and with a number of emendations of the text —notably eliminating Bresadola's 1900 acknowledgement that Boudier had informed him that specimens Bresadola had sent to him were identical with Gillet's species. The 1933 plate renders the figures in paler colors throughout.

Since Gillet's plate does not provide enough information for modern identification, an epitype is in order. The CODE requires that if an illustration is the only surviving element of the original material, that illustration should be designated as a lectotype, which we do in this paper. The confused information that already exists on the morphology of this species in the literature can be resolved with an epitype specimen. Gillet (1879) described *H. fusca* with spherical to subspherical ascospores, and he did not mention any other useful microscopic character. Bresadola (1900) described ascospores as ellipsoidal, 18–20 × 12–13 µm (but he did not indicate whether those measurements correspond to smooth or to verrucose ascospores), and a glabrous, sterile outer surface of the apothecium. Dissing (1966b) mentioned ascospores 17–18.4–21 × 11–12–13 µm, with pustules when young, and the outside of the apothecium naked or very delicately pubescent. The senior author studied Bresadola's specimen 05 21 1898 (now the epitype) and observed that smooth (young) ascospores were larger, while verrucose (mature) were smaller (FIG. 5a) (see species description), with the hyphal fascicles of the apothecium absent or ≤ 50 µm in length (FIG. 5b), corresponding to a glabrous to subpubescent surface.

Inasmuch as the incorrect neotypification appeared in Mycotaxon (Abbott & Currah 1997: 61), we have chosen that same journal in which to rectify their action and to propose both the new lectotype and new epitype for the name.

The corrected typifications and full description

Helvella fusca Gillet, Champignons de France, Discom.: 9, pl. 4, 1879. Fig. 5

Type: Pl. 4, in Gillet, Champignons de France, Discom., 1879 (**Lectotype, designated here**); Bresadola 05.21.1898, Al Deserto, Italy (S) (**Epitype. designated here**).

= *Helvella fusca* var. *bresadolae* Boud., Icon. Mycol. (Paris), Tome 2: pl. 230, 1910; Tome 4: 121, 1911.

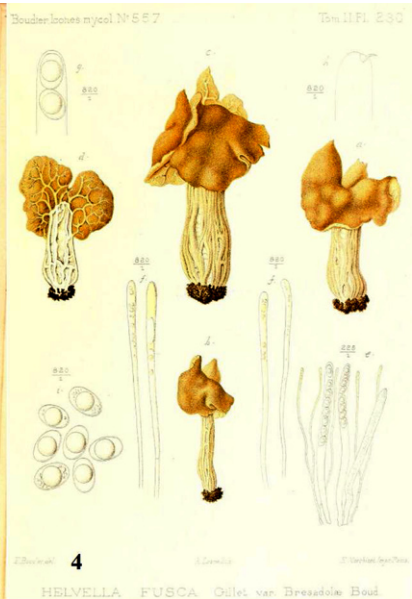
= *Helvella fusca* var. *gyromitroides* Chenant., in Pelé & Chenantais, Bull. Soc. Sci. Nat. Ouest, Sér. 4, 1: 75, 1921.

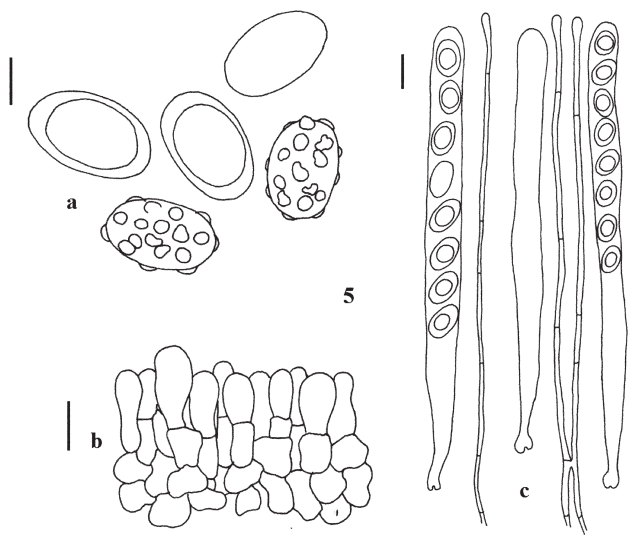
≠ *Helvella sulcata* α *fusca* Afzel., K. Vetensk.-Acad. Handl. 4: 305, Tab. X, fig. 1, 1783.

Apothecium 6–25 mm diam., 4–25 mm high, irregularly lobed or irregularly saddle shaped, margin fused to the stipe or rarely free, hymenium pale brown, tawny, to dark brown when dry, outside glabrous to subpubescent, whitish, yellowish, to pale brown, ribs branched or unbranched, extending near to the marginal zone of the excipular surface. Stipe 8–45 mm high, 3–15 mm broad, equal or slightly wider at the base, whitish or pale brown, glabrous to subpubescent, lacunose, internally chambered.

Asci 260–320 × 14–15.5 µm, pleurorhynchous. Ascospores young, smooth: (17–)18.5–21 × 11–13 µm; mature, verrucose: 15.5–18.5 × 11–12.5 µm. Paraphyses clavate, 5–8 µm wide at the apex, simple or branched, septate, thin-walled, yellowish brown, pigmented deposits in the cytoplasm. Medullary excipulum hyaline. Ectal excipulum yellowish brown, pigmented deposits usually in the cell wall and in a few cells in the cytoplasm. Inner layer of the stipe hyaline. Outer layer of the stipe yellowish brown, pigmented deposits usually in the cell wall and in few cells in the cytoplasm. Hyphal fascicles of the apothecium and stipe up to 50 µm long, light brown in mass, pigmented deposits in the cell walls. None of the pigmented deposits in any of the structures are visible in cotton blue mounts. All tissues are "rr–."

Remarks — *Helvella fusca* can be confused with *H. lacunosa* Afzel., because both have lobed apothecia, a lacunose stipe, glabrous to subpubescent excipular surface with the outer surface of the stipe similar, but *H. fusca* has a pale brown hymenium and grows associated with *Populus* spp., while *H. lacunosa* has a black or greyish hymenium and has a global distribution with no particular association with *Populus***.** Boudier (1904) first introduced *H. fusca* var. *bresadolae* as a nomen nudum for a plate he planned to issue later. As pointed out by Korf (1986: 213, footnote; 1988: 213, footnote), Boudier (1907) soon after abandoned the variety, citing his plate as merely *H. fusca*. Boudier (1910), who eventually validly proposed *H. fusca* var. *bresadolae* (Fig. 4) based on apothecia





Figs. 3–5. 3: *Helvella fusca* reproduced from Bresadola (1900, from Boudier's book deposited in Cornell University Library). 4: Type of *H. fusca* var. *bresadolae* reproduced from Boudier (1910, Tome 2, pl. 230). 5: *Helvella fusca* (epitype), a: ascospores, b: ectal excipulum, c: paraphyses and asci. Scale bar: 5a = 8 µm; 5b, 5c = 20 µm.

that Bresadola sent him (but unfortunately not cited in the description), wrote "Hæc varietas typo simillima, differt tantummodo pediculo non albido, sed pileo concolore." Boudier (1911) later expanded the description. Dissing (1966a) considered this variety as invalid, because this specimen is possibly part of the Bresadola material that he studied and determined as "in all details identical." We also do not recognize the variety, because Gillet did not describe the stipe color only as white but as "dessous pâle, blanc sale ou lég[èremen]t. fuligineux." Furthermore, in *Helvella* stipe coloration varies too greatly within a species to be considered useful for recognizing varieties. For example the stipe of *H. lacunosa* can vary from whitish to grayish to black. Chenantais (Pelé & Chenantais 1921) proposed *H. fusca* var. *gyromitroides*, but the features that he used to recognize the variety (multilobed, fawn and free apothecial margin, and lacunose and yellowish stipe) are within the range of variation of the species. We do not consider *H. fusca* a synonym of *H. sulcata* α *fusca*, because Afzelius recognized *H. sulcata* with "sulcis regularibus," i.e., only longitudinal ribs on stipe (Afzelius 1783, Tab. X, fig.1; this figure is also in Dissing (1966b, fig. 27c), while *H. fusca* and *H. lacunosa* have longitudinal and transverse ribs (lacunose stipe) [i.e., in the words of Afzelius: "lacunis sulcisque irregularibus"]. DNA sequences support *H. sulcata* as a distinct species (unpublished data), contrary to the opinions by Dissing (1966b) and Abbott & Currah (1997), who considered it a synonym of *H. lacunosa*. Persoon (1801) described *H. sulcata* α *fusca* with "pileo nigro." *Helvella fusca* has more recently been reported from Europe, North America, and Asia (Dissing 1966b, Ceccaldi 2006, Kempton & Wells 1970; Kaushal 1991). Abbott & Currah (1997) doubted the existence of *H. fusca* in North America because their study indicated that such reports were probably *H. maculata* N.S. Weber. On the other hand, Kaushal (1991) recorded *H. fusca* from the Himalayas, but as his description mentioned hyphal fascicles of the apothecium measuring ≤ 105 µm long, it is unclear whether that report corresponds to *H. fusca*. Based on the above information, we can say that its distribution outside of Europe remains doubtful.

Acknowledgments

The authors thank John McNeill and Walter Gams, who have served as pre-submission reviewers. We also wish to acknowledge the efforts of the organizers of the July 2011 VII Congress of Latin American Mycology for providing an opportunity to meet each other and to begin a collaboration on studies of *Helvella* and other operculate discomycetes. The senior author thanks Laura Guzmán-Dávalos for her support and direction in his Doctoral studies and for revision of a preliminary version of this paper, and thanks Anders Tehler, Curator of the Herbarium S, for the loan of Bresadola's specimen. Virginia Ramírez Cruz (Universidad de Guadalajara, Mexico) is acknowledged for her valuable help inking the drawings. We both appreciate those responsible for the digital library of the Real Jardín Botánico de Madrid (http://bibdigital.rjb.csic.es/spa/index.php) as well

as the Internet Archive (http://www.archive.org/) for uploading invaluable literature for taxonomists on their websites.

Literature cited

Abbott SP, Currah RS. 1997. The *Helvellaceae:* systematic revision and occurrence in northern and northwestern North America. Mycotaxon 62: 1-125.

Afzelius A. 1783. Svamp-Slägtet *Helvella*. K. Vetensk.-Acad. Handl. 4: 299–313.

Boudier [JL]E. 1904. Liste préliminaire des noms des 600 espèces de champignons qui doivent être figurés dans les six séries de Boudier, Icones Mycologicæ. 4 pp.

Boudier [JL]E. 1907. Histoire et classification des Discomycètes d'Europe. Librairie des Sciences Naturelles. Paris. 223 pp.

Boudier [JL]E. 1910. Icones mycologicæ ou iconographie des champignons de France. Tome II, planches 194–421. Librairie des Sciences Naturelles. Paris.

Boudier [JL]E. 1911. Icones mycologicæ ou iconographie des champignons de France. Tome IV, texte descriptif. Librairie des Sciences Naturelles. Paris. 362 pp.

Bresadola G[J]. 1900 ["1892"]. Fungi tridentini novi, vel nondum delineati, descripti, et iconibus illustrati, ser. 2, fasc. 14, pp. 83–118, plates 196–217. Tridentini.

Bresadola G[J]. 1932. Icones Mycologicae et Supplementum, [eds. Traverso JB, Catoni G, Fenaroli L, Trener JB] vol. 24 (Tab. 1151–1200). Medeolani.

Ceccaldi JB. 2006. *Helvella fusca*, une Helvelle (champignon) récemment observée en Gironde (SW France) pour la première fois. Bull. Soc. Linn. Bourdeaux 141, n. 34(2): 135–139.

Dissing H. 1966a. A revision of collections of the genus *Helvella* L. ex Fr. emend. Nannf. in the Boudier Herbarium. Rev. Myc. 31: 189–224.

Dissing H. 1966b. The genus *Helvella* in Europe with special emphasis on the species found in Norden. Dansk Botanisk Arkiv 25(1): 1–172.

Gillet CC. 1879. Champignons de France. Les discomycètes, livr. 1, pp. [1]–28. Alençon, Paris.

Kaushal SC. 1991. Systematics of N.W. Himalayan species of *Helvella* (operculate discomycetes). In: Khullar SP, Sharma MP (eds.). Himalayan botanical researches. Ashish Publishing House, New Delhi. Pp. 61–75, pl. I–VII.

Kempton PE, Wells VL. 1970. Studies on the fleshy fungi of Alaska IV. A preliminary account of the genus *Helvella*. Mycologia 62(5): 940–959. http://dx.doi.org/10.2307/3757607

Korf RP. 1986. A compendium of acceptable names for species illustrated in volumes 2 and 3 of Boudier's Icones Mycologicae [with French translation by Jean-Daniel Pellet], pp. 209–252, in: van Brummelen J, Korf RP, Clémençon H, Jülich W, Demoulin V. Icones Mycologicae par Emile Boudier, Tome V, Liste préliminaire & explication des planches [reprint edition]. Editions Piantanida, Lausanne.

Korf RP. 1988. A compendium of acceptable names for species illustrated in volumes 2 and 3 of Boudier's Icones Mycologicae, Annotated: errata, some necessary changes in citations, and suggested changes based on recent taxonomic information. Ithaca: Privately printed. 48 pp.

McNeill J, Turland NJ. 2011. Synopsis of proposals on botanical nomenclature – Melbourne 2011. A review of the proposals concerning the International Code of Botanical Nomenclature submitted to the XVIII International Botanical Congress. Taxon 60: 243–286.

McNeill J, Barrie FR, Burdet HM, Demoulin V, Hawksworth DL, Marhold K, Nicolson DH, Prado J, Silva PC, Skog JE, Wiersema JH, Turland NJ. 2006. International Code of Botanical Nomenclature (Vienna Code). Regnum Vegetabile 146. 568 pp. (http://ibot.sav.sk/icbn/main.htm).

McNeill J, Turland NJ, Monro A, Lepschi BJ. 2011. XVIII International Botanical Congress: preliminary mail vote and report of Congress action on nomenclature proposals. Taxon 60: 1507–1520.

Pelé P, Chenantais JE. 1921. Contribution à la flore mycologique de la Loire-Inférieure. Bull. Soc. Sci. Nat. Ouest., Sér. 4, 1: 71–115.

Perry G. 2010. (215-222) Proposals on original material. Taxon 59: 1909–1910.

Persoon CH. 1801. Synopsis methodica fungorum 2: i–ii, 241–706. Henricus Dieterich, Göttingen, Germany.

Ross R. 2002. Which illustrations are original material? Taxon 51: 523–524. http://dx.doi.org/10.2307/1554867